Background on Invasive Species

Invasive species are organisms that are introduced into an area beyond their natural range and become pests in the new environment. They are also referred to as alien, non-native, or introduced pests. An invasive species does not occur naturally in a specific area, and its introduction may cause economic (including agricultural) or environmental harm or harm to human health.

Invasive pests and diseases generally share three things in common: They came to California from other parts of the globe; international travel or commerce brought them here; and their new home has many of the attributes of their native environment, but typically none of their enemies (predators, parasites, etc.), giving them an unnatural advantage over our native species.

How do invasive species get into California?

Ever-increasing rates of personal travel and commerce put our environment and our agriculture at serious risk from the unintentional introduction of exotic and invasive strains and species. Pests can come into California on commercial shipments of plants and other materials, and we know they also come in when travelers bring prohibited fruits, plants, seeds, animals and other items back from abroad. There are certainly other ways, but these are considered to be the primary pathways for unwanted pests and diseases to get past our borders.

How can I help?

One of the most important things each traveler returning to California can do is refrain from bringing back any fruits, vegetables, nuts, seeds, plants or other natural items unless they have been cleared by the appropriate officials. If you are coming into the state from another country, federal inspectors have jurisdiction. If you are traveling between states, state officials have jurisdiction. Cooperating with customs officials and others who are looking out for these invasive species is the best way to help keep the unwanted pests out in the first place.

What kind of damage can invasive species do?

Invasive species are considered the second greatest threat to biological diversity after habitat loss. Ecologists increasingly refer to these invasive organisms as “biological pollution.” If allowed to enter and become established in the state, these pests and diseases bring with them increased food and fiber costs, increased pesticide use, and damage to native species of plants and animals, forests, watersheds, lakes, rivers, and water delivery systems. California agricultural losses to exotic pests exceed $3 billion annually; 42 percent of Threatened or Endangered US species are at risk; around the world, 80 percent of endangered species are threatened primarily by invasives. (Source: Center for Invasive Species Research, U.C. Riverside).

The risks stretch well beyond agriculture, to our forests, our parks, our water supply and beyond. That’s why the newly formed California Invasive Species Council includes a diverse membership including the California Natural Resources Agency, the California Environmental Protection Agency, the California Business, Transportation and Housing Agency, the California Emergency Management Agency and the California Health and Human Services Agency. When exotic insect pests are excluded from the state, all of society benefits in the form of lower food costs, increased recreational value of public and private lands, and protection of urban landscapes.

What are California’s top invasive species threats?

One of the first actions of the newly formed California Invasive Species Council will be to generate a list of the highest priority invasive species that cause or may cause the greatest economic, public health or environmental hardship. A partial list of species that the Council will consider includes:

Exotic fruit flies are a constant threat to the agricultural industry in California. The larval (maggot) stage of fruit flies such as Mediterranean fruit fly (Medfly), Mexican fruit fly and Oriental fruit fly can damage most of

the fruits and vegetables grown in our state. These and other exotic pests have not become established in California due to strict federal exterior and state interior quarantines, a pest detection program, and aggressive eradication programs when an infestation is discovered. Establishment of these flies would cause direct economic losses via damaged fruit; increased pesticide use statewide by commercial and residential growers in efforts to lessen this damage; loss of revenue due to export restrictions on fruit both domestically and internationally; and adverse impacts on native plants through the destruction of their fruit. A permanent infestation would result in estimated annual losses of $1.3 to $1.8 billion from Medfly alone.

Animal diseases such as avian influenza, foot and mouth disease, exotic Newcastle disease, and others are constant threats to our livestock and native animal species.

The Asian gypsy moth (AGM) is a pest of trees that poses a major threat to forest habitats in North America. If established in the United States, AGM can attack more than 500 species of trees and shrubs. AGM defoliation would severely weaken trees and shrubs, killing them or making them susceptible to diseases and other pests. This defoliation not only kills and weakens trees, but also alters forest compensation and destroys habitat for mammals and birds. AGM females are active fliers (up to 25 miles) that could quickly infest and spread throughout the United States. If established, the damage could average millions of acres of forest and urban trees each year.

The Asian longhorned beetle's (ALB) introduction to the United States has earned it the title of pest both here and in its home country of China. The beetle is a serious threat to hardwood trees and has no known natural predator in the United States. If the ALB becomes established here, it has the potential to cause more damage than Dutch elm disease, chestnut blight, and gypsy moths combined, destroying millions of acres of America's treasured hardwoods, including national forests and backyard trees. The beetle has the potential to damage such industries as lumber, maple syrup, nursery, and tourism accumulating over $41 billion in losses.

The Asian citrus psylid (ACP), a recent introduction in California, is a pest that acts as a carrier spreading citrus greening (or huanglongbing), a devastating disease of citrus trees. This bacterial disease is transmitted to healthy trees by the psyllid after it feeds on infected plant tissue. All citrus and closely-related species are susceptible hosts for both the ACP insect and the disease. There is no cure once a tree becomes infected. The disease tree will decline in health and eventually die. California has a $1.1 billion citrus industry, second in size only to Florida. If the ACP begins to transmit the citrus greening disease, the entire industry could be at risk. Japanese dodder is a non-native parasitic plant that has the ability to kill most trees and shrubs.

Japanese dodder resembles a twisting, yellow-to-orange strand of spaghetti. Japanese dodder kills its host plant by robbing it of food and water. In California, Japanese dodder reproduces through the dissemination of small fragments of stems. These plant parts can be spread by birds and other animals, and by human activities such as pruning, gardening, composting and the improper disposal of infested plant materials.

Hydrilla is an invasive, non-native water plant and has been called the world's worst submersed weed. It reduces water storage and water movement, chokes water control structures and hydroelectric generators, interferes with boating and fishing, damages fish and wildlife habitat, and produces good mosquito breeding habitat. Hydrilla once heavily infested canals in the Imperial Irrigation District of Southern California, where it reduced water flows as much as 85 percent. Control costs in highly infested states, such as Florida, are in the tens of millions of dollars each year.

Quagga and Zebra Mussels are non-native aquatic mollusks that wreak havoc on the environment by disrupting the natural food chain. The mussels are filter feeders that can cause a shift in native species and a disruption of the ecological balance of entire bodies of water. The mollusks also pose a dramatic economic threat to California. Aquatic mollusks can devastate waterways, which is why local governments and water users are encouraging all Californians not to move a mussel.